OIPE IAP13
SEP 29 2005
PATENT & TRADEMARK OFFICE



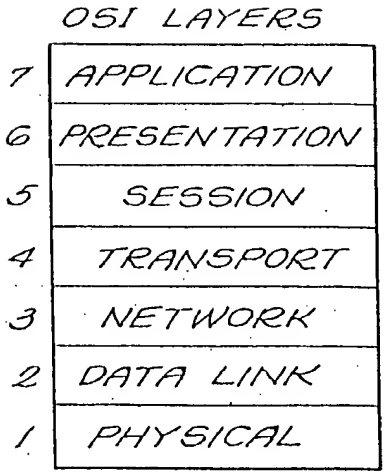


FIG. 1
(PRIOR ART)

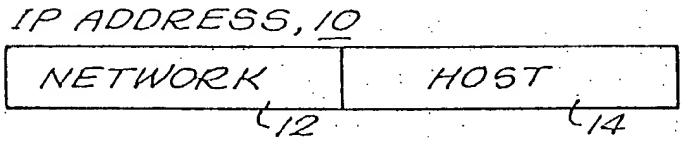


FIG. 2
(PRIOR ART)

| | ADDRESS, 40 | PREFIX LENGTH, 42 | INTERFACE, 44 |
|---|---|---|---|
| 30 | 1.0.0.0 | 8 | C |
| 32 | 1.2.3.0 | 24 | B |
| 34 | 1.2.4.0 | 24 | A |
| 36 | 1.2.0.0 | 16 | A |

FIG. 4A
(PRIOR ART)

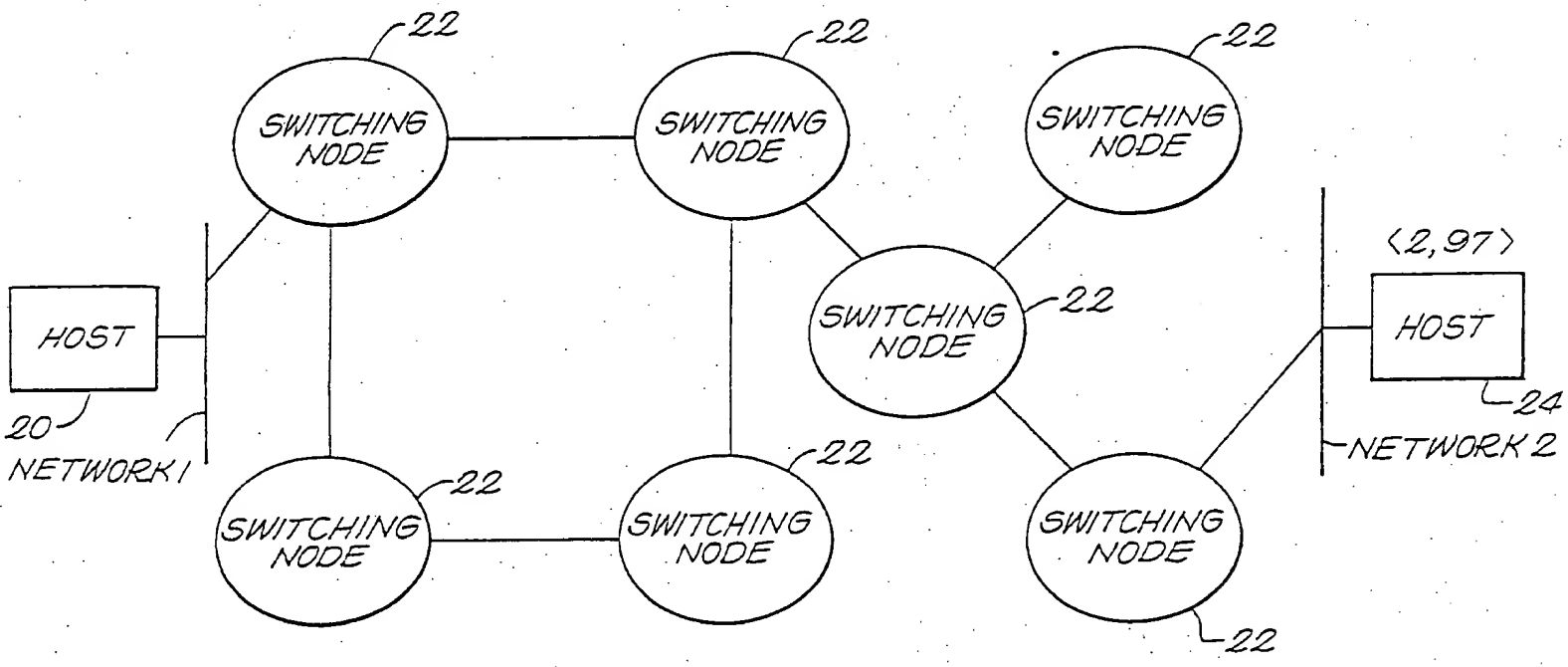


FIG. 3
(PRIOR ART)

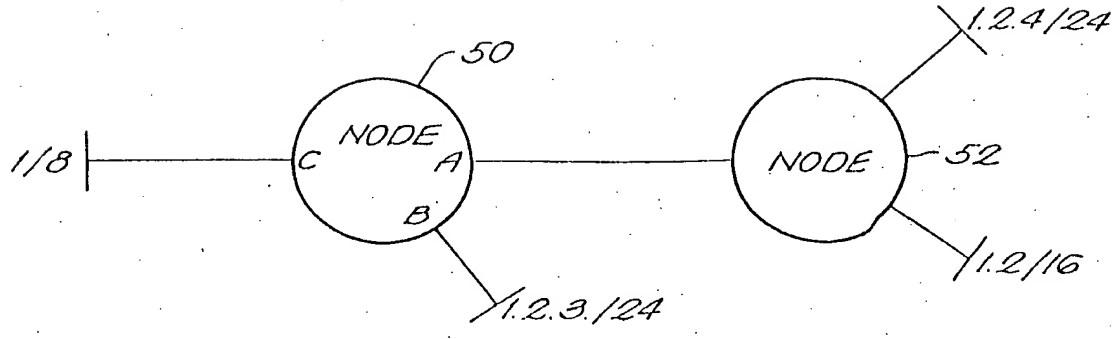


FIG. 4B
(PRIOR ART)

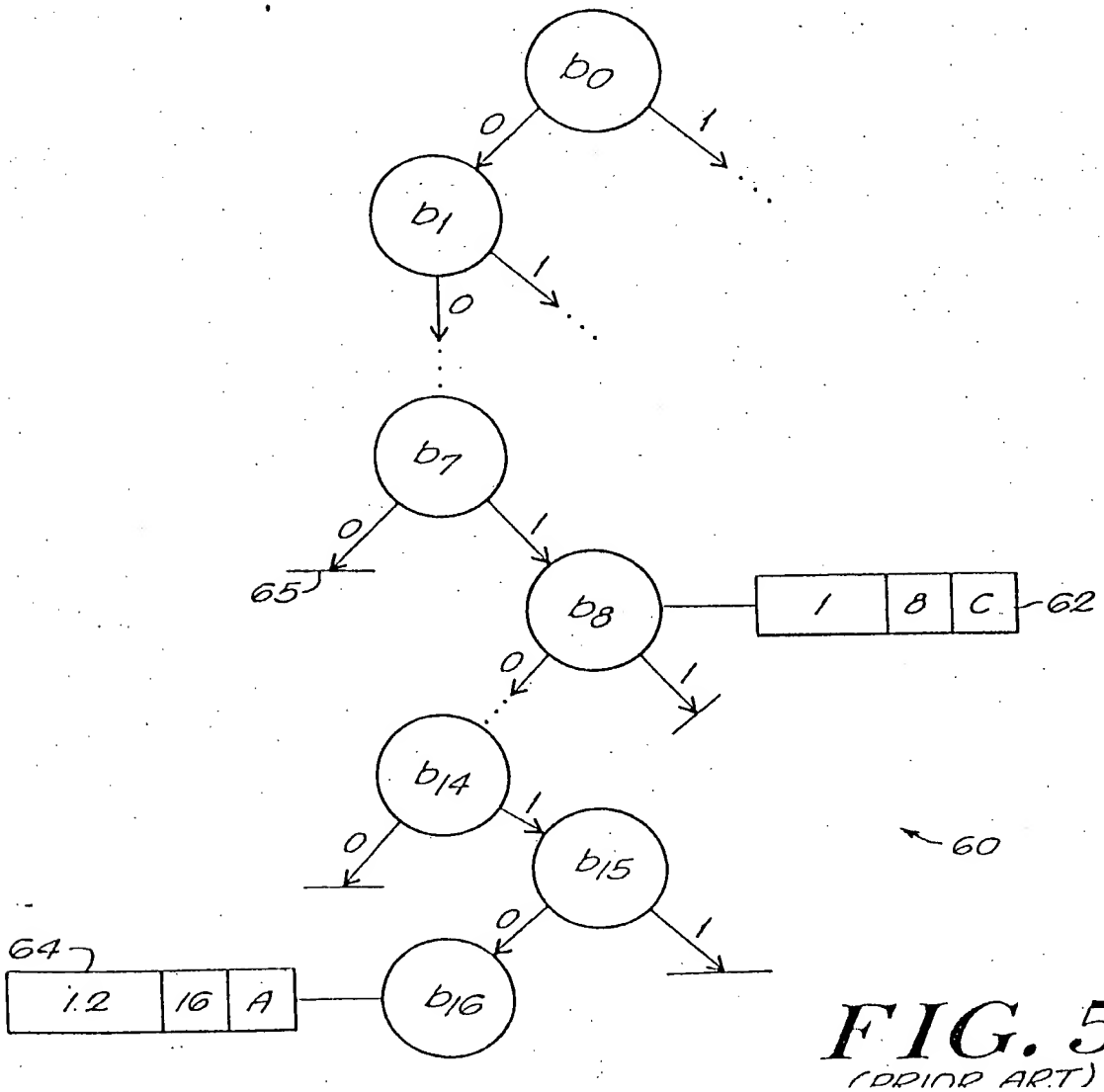


FIG. 5
(PRIOR ART)

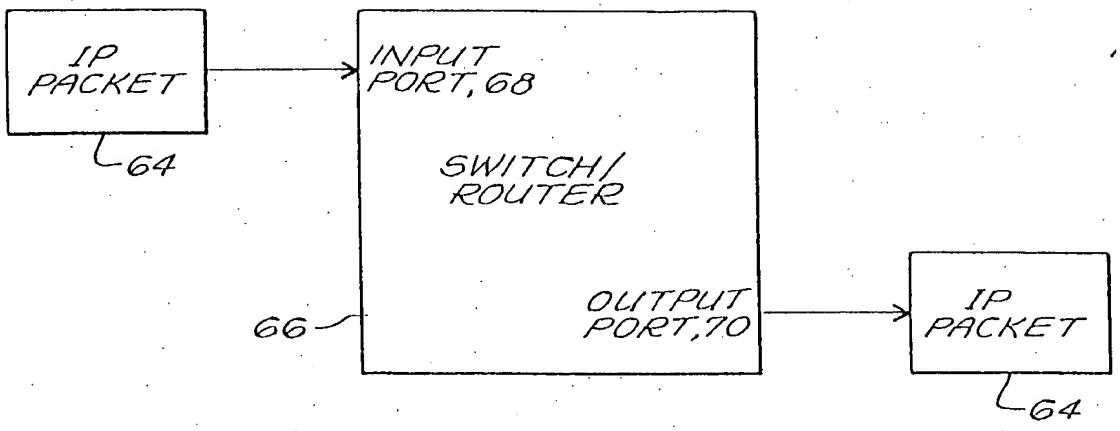
IP PACKET
64
INPUT PORT, 68
SWITCH/ ROUTER
66
OUTPUT PORT, 70
IP PACKET
64

FIG. 6

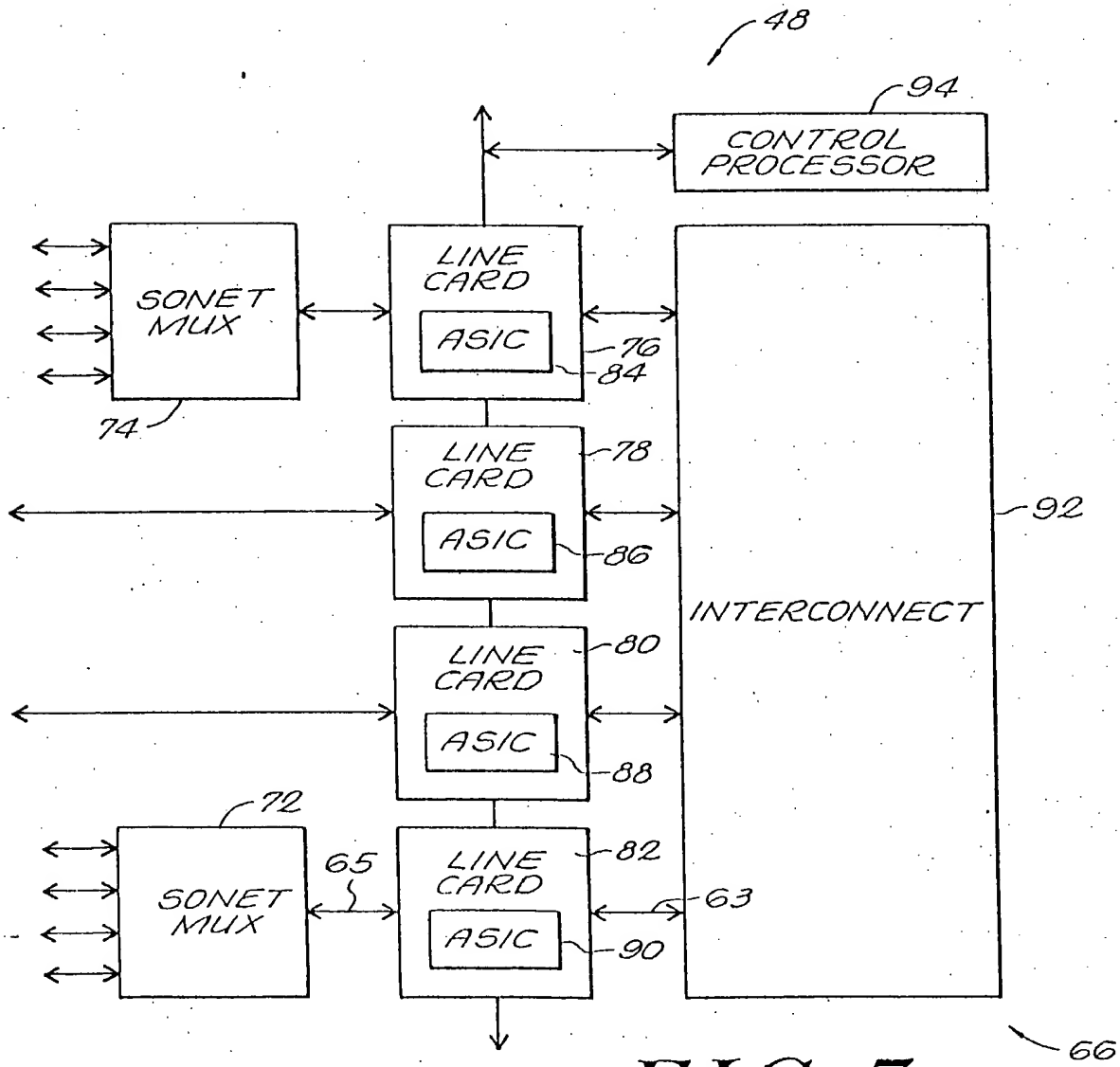
48
94
CONTROL PROCESSOR
SONET MUX
74
LINE CARD
ASIC
76
84
LINE CARD
ASIC
78
86
LINE CARD
ASIC
80
88
INTERCONNECT
92
72
SONET MUX
65
LINE CARD
ASIC
82
63
90
66

FIG. 7

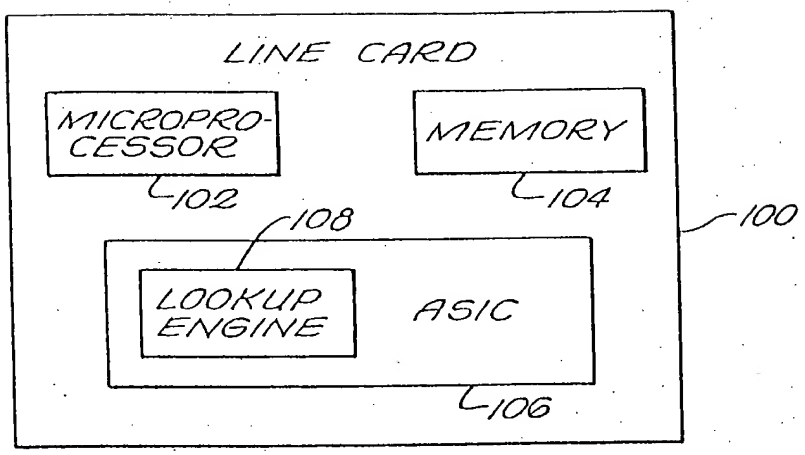
LINE CARD
MICROPRO-
CESSOR
102
MEMORY
104
100
108
LOOKUP
ENGINE
ASIC
106

FIG. 8

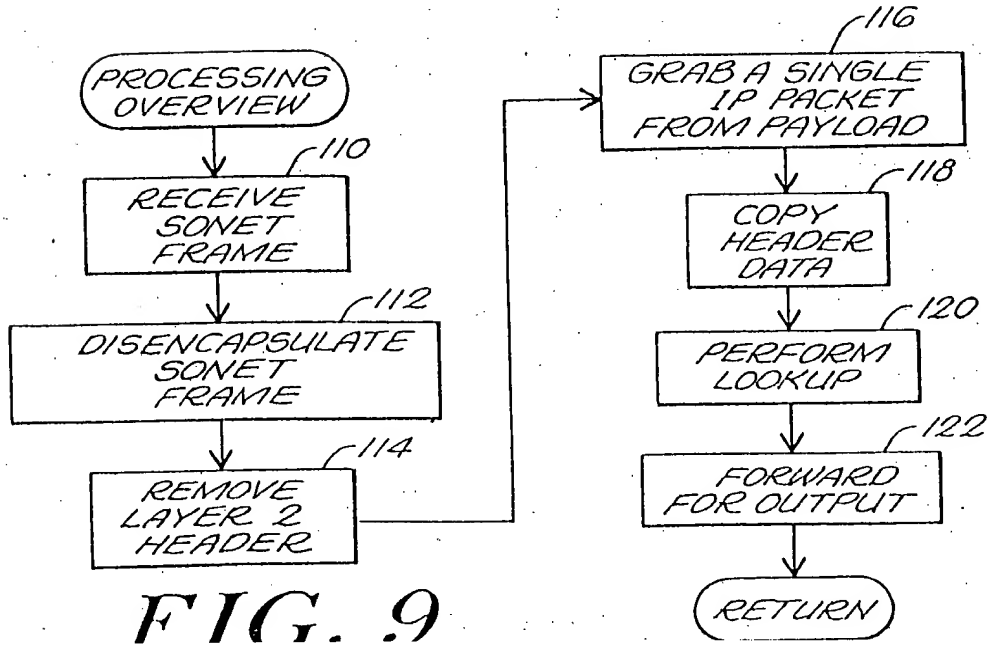
PROCESSING
OVERVIEW
RECEIVE
SONET
FRAME
110
DISENCAPSULATE
SONET
FRAME
112
REMOVE
LAYER 2
HEADER
114
GRAB A SINGLE
IP PACKET
FROM PAYLOAD
116
COPY
HEADER
DATA
118
PERFORM
LOOKUP
120
FORWARD
FOR OUTPUT
122
RETURN

FIG. 9

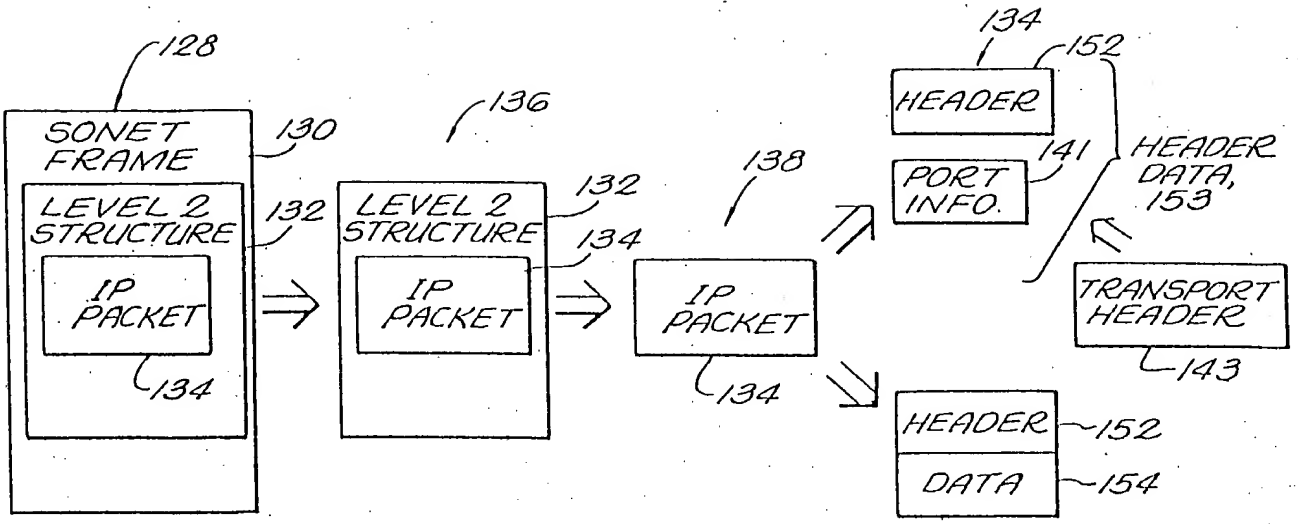


FIG. 10

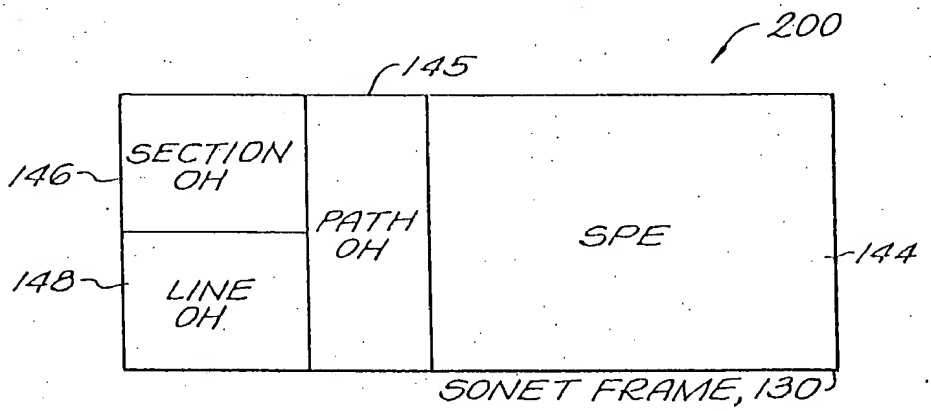


FIG. 11

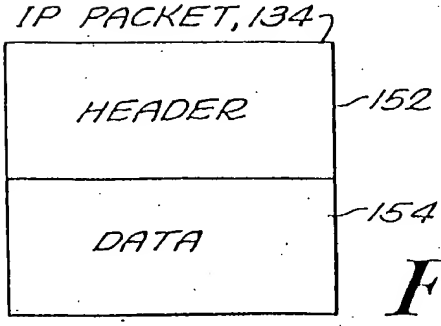


FIG. 12

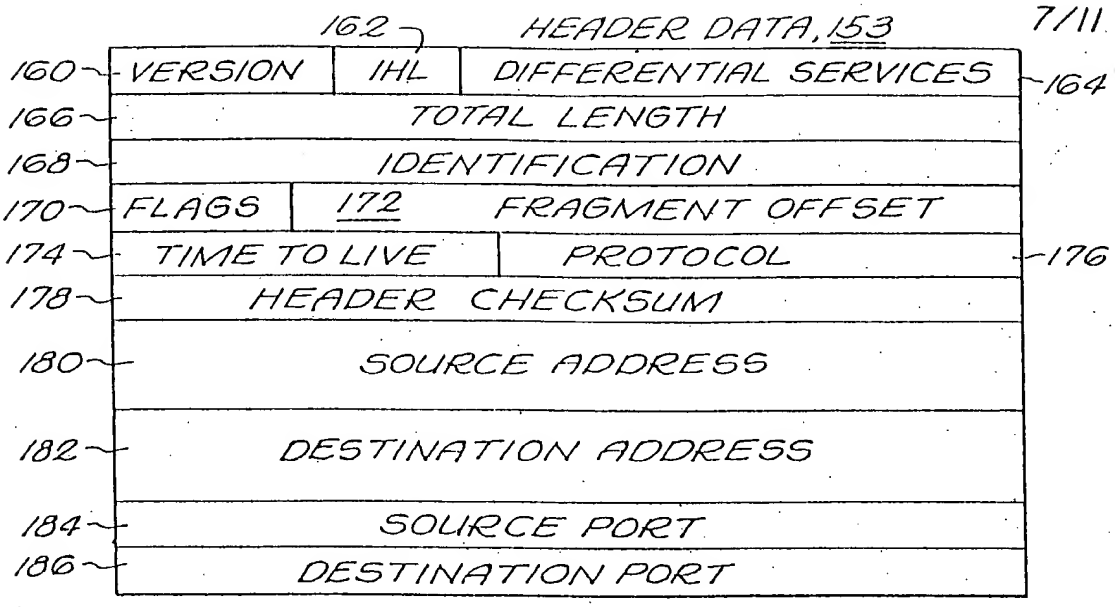


FIG. 13

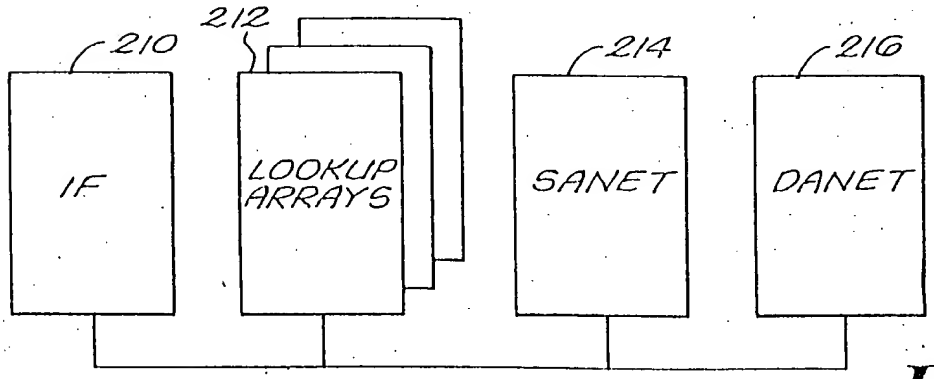


FIG. 14

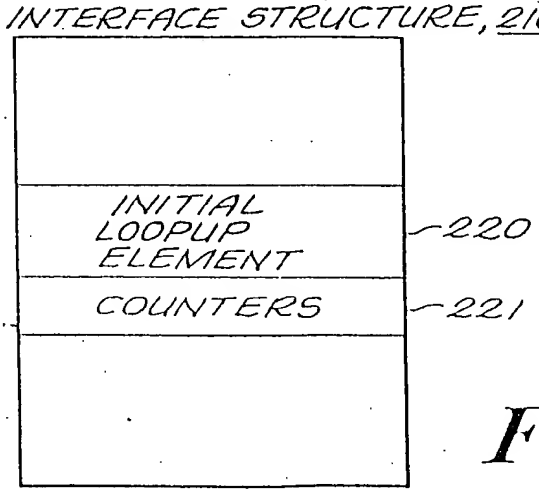


FIG. 15

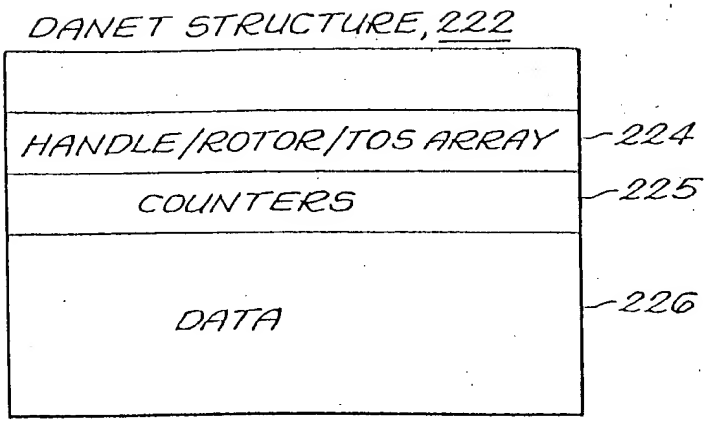
DANET STRUCTURE, 222
HANDLE/ROTOR/TOS ARRAY
224
COUNTERS
225
DATA
226

FIG. 16

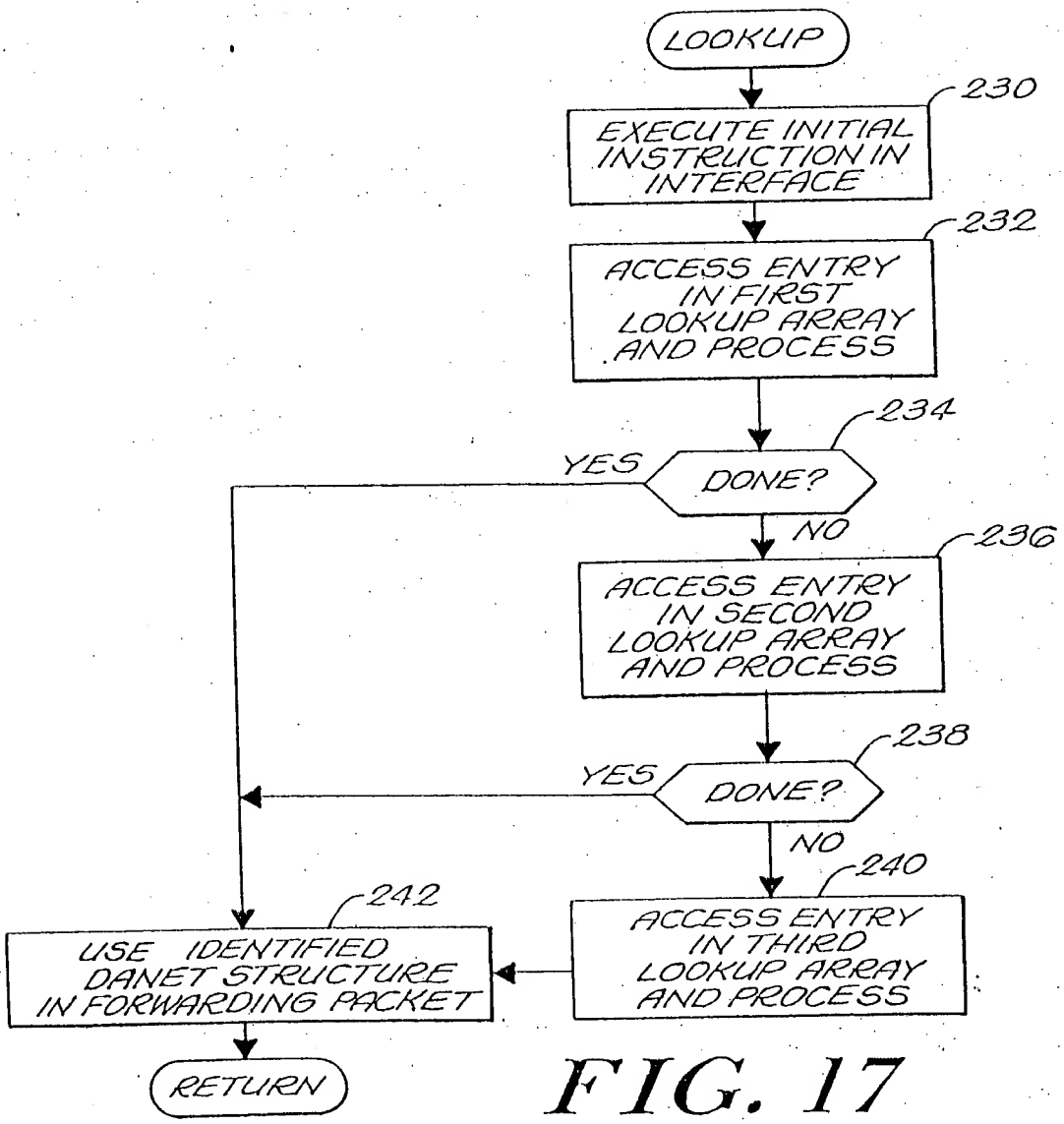
LOOKUP
EXECUTE INITIAL INSTRUCTION IN INTERFACE
230
ACCESS ENTRY IN FIRST LOOKUP ARRAY AND PROCESS
232
DONE?
234
YES
NO
ACCESS ENTRY IN SECOND LOOKUP ARRAY AND PROCESS
236
DONE?
238
YES
NO
ACCESS ENTRY IN THIRD LOOKUP ARRAY AND PROCESS
240
USE IDENTIFIED DANET STRUCTURE IN FORWARDING PACKET
242
RETURN

FIG. 17

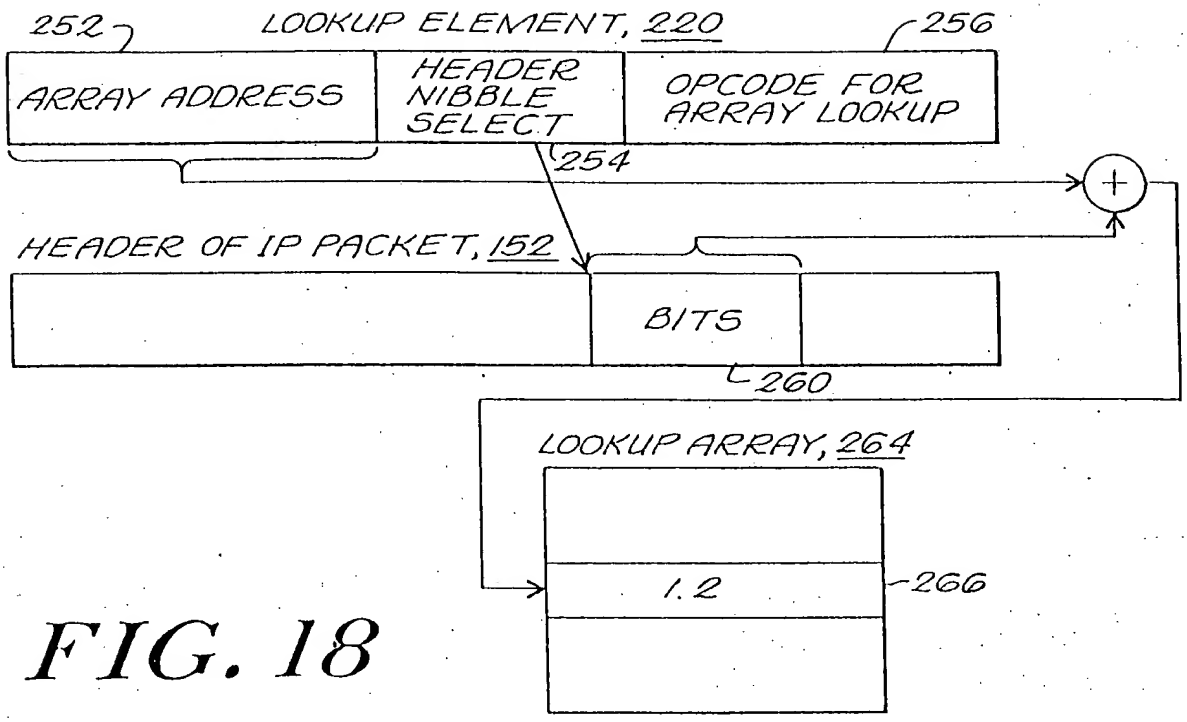


FIG. 18

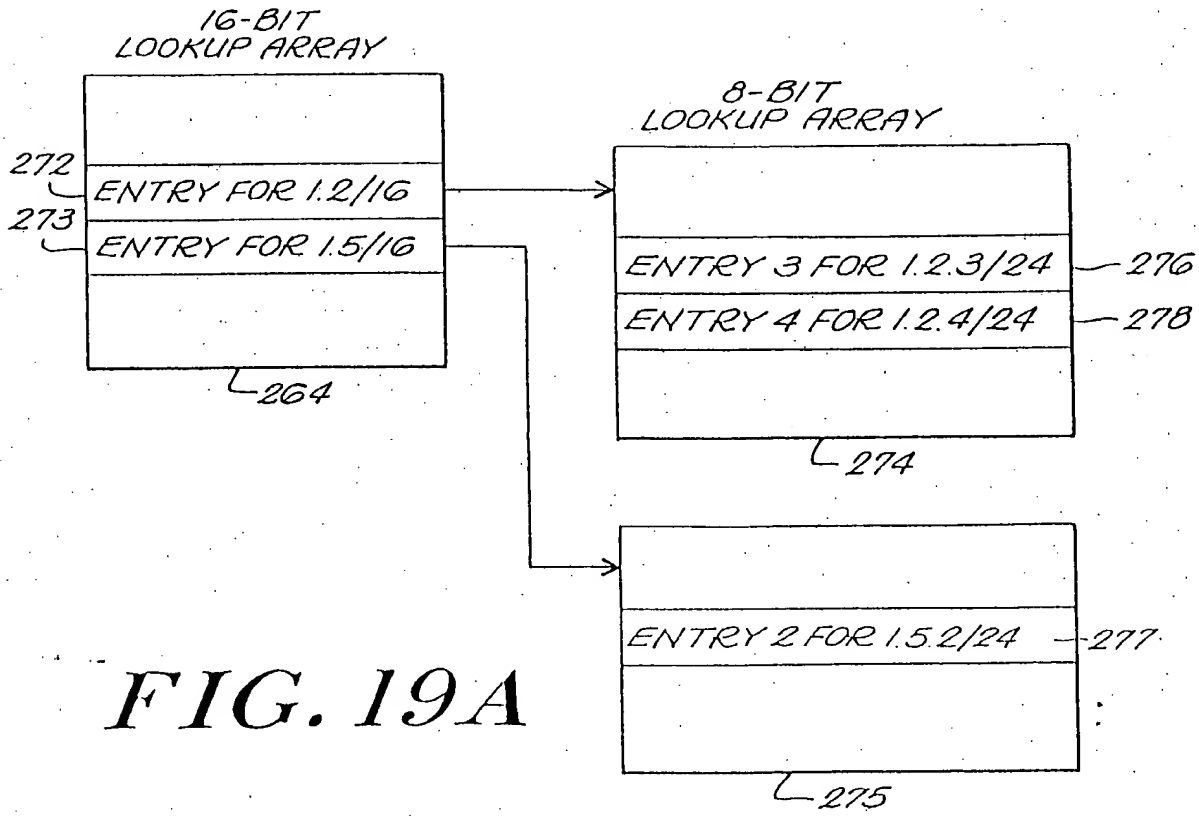


FIG. 19A

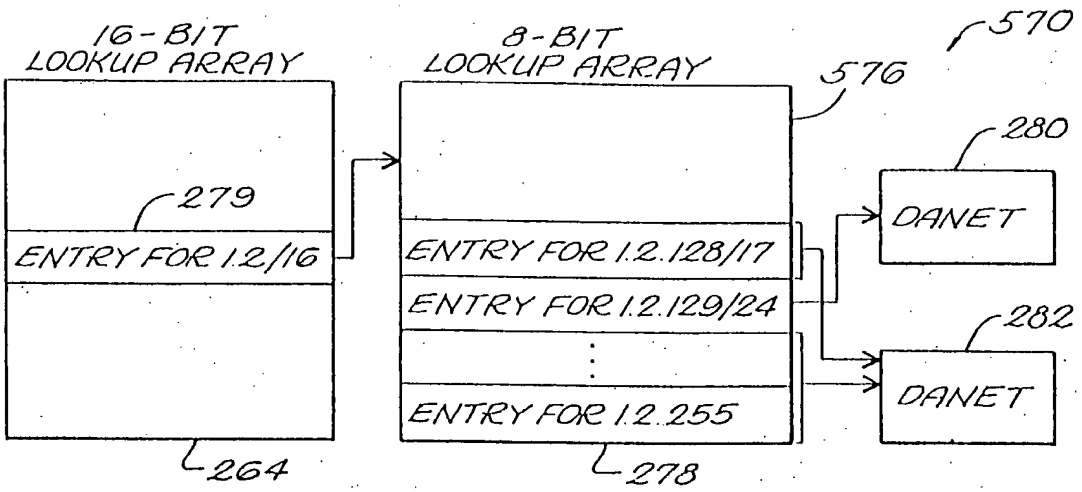


FIG. 19B

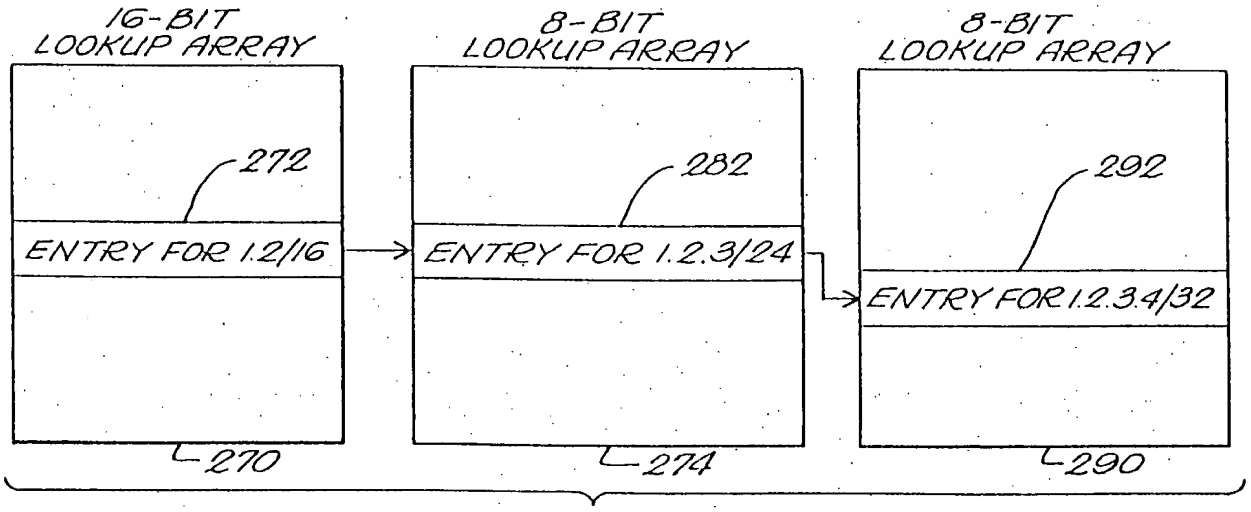


FIG. 19C

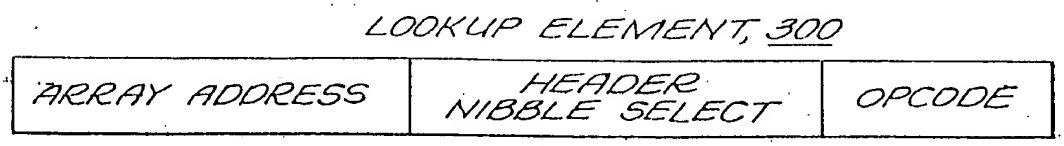


FIG. 20

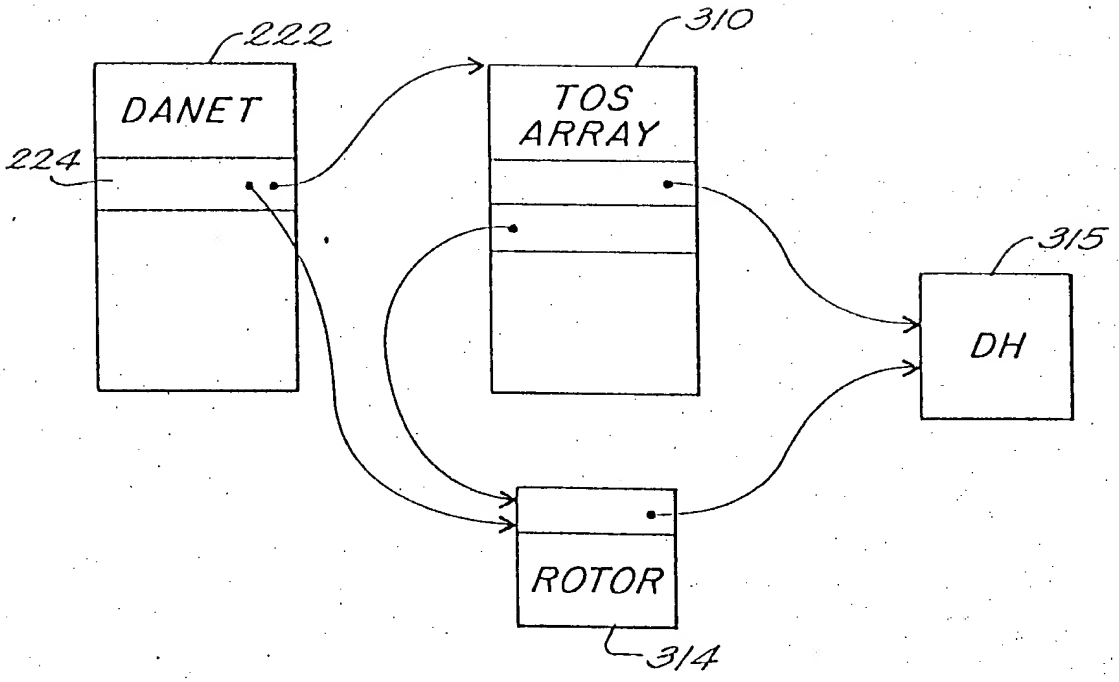


FIG. 21